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EXAMINER	
PARSLEY, DAVID J	

ART UNIT	PAPER NUMBER
3643	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/574,999	BATES ET AL.	
	Examiner	Art Unit	
	DAVID J. PARSLEY	3643	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 November 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,5-18,20-27,29,30,45 and 46* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5-18,20-27,29,30,45 and 46* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *07 April 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *12-13-10*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Detailed Action

Amendment

1. This office action is in response to applicant's amendment dated 11-8-10 and this office action is a final rejection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-3, 13, 20-27, 29-30 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,766,813 to Winter et al. in view of U.S. Patent Application Publication No. 2004/0020397 to Nielson et al. or alternatively in view of U.S. Patent Application Publication No. 2002/0017214 to Jacoby et al.

Referring to claims 1, 29 and 46, Winter et al. discloses a reactive shaped charge liner comprising a stoichiometric composition of two metals whereby the liner is capable in operation of an exothermic reaction upon activation of an associated shaped charge and in which the two metals are provided in respective proportions calculated to give an electron concentration of 1.5 - see figure 1 and column 3 lines 20-45. Winter et al. further discloses the composition is a pressed

particulate composition - see column 3 lines 20-45. Winter et al. further discloses the composition of the at least two metals further comprises at least one further metal, wherein the at least one further metal is not capable of exothermic reaction upon activation of the shaped charge liner - see column 3 lines 20-45 of Winter et al. Winter et al. does not disclose a compacted particulate composition of the at least two metals. Nielson et al. and Jacoby et al. each disclose a shaped charge liner made of a compacted particulate composition of the at least two metals - see paragraphs [0030] and [0033] of Nielson et al. and paragraph [0021] of Jacoby et al. Therefore it would have been obvious to one of ordinary skill in the art to take the device of Winter et al. and add the compacted particulate composition of two metals of Nielson et al. and Jacoby et al., so as to allow for the liner to be made into a single layer comprising multiple materials. Specific to claim 46, Winter et al. and Jacoby et al. do not disclose a fluoropolymer oxidizing agent and Nielson et al. discloses using oxidizing agents other than fluoropolymers such as fluroelastomers.

Referring to claim 2, Winter et al. as modified by Nielson et al. and Winter et al. as modified by Jacoby et al. further discloses one of the metals is aluminum – see column 3 lines 20-45 of Winter et al.

Referring to claim 3, Winter et al. as modified by Nielson et al. and Winter et al. as modified by Jacoby et al. further discloses one of the metals is selected from nickel and palladium - see column 3 lines 20-45 of Winter et al.

Referring to claim 13, Winter et al. as modified by Nielson et al. and Winter et al. as modified by Jacoby et al. further discloses the composition of the at least two metals is particulate with the particles having a diameter of 10 microns or less - see column 4 lines 50-66 of Winter et al.

Referring to claim 20, Winter et al. as modified by Nielson et al. and Winter et al. as modified by Jacoby et al. further discloses the at least one further metal is selected from copper, tungsten or an alloy thereof – see column 3 lines 20- 45 of Winter et al.

Referring to claim 21, Winter et al. as modified by Nielson et al. and Winter et al. as modified by Jacoby et al. further discloses the device of claim 1 as a shaped charge perforator - see figure 1 of Winter et al.

Referring to claim 22, Winter et al. as modified by Nielson et al. and Winter et al. as modified by Jacoby et al. further discloses a housing – at 12, a quantity of high explosive - at 14, located within the housing - see figure 1 of Winter et al., and a liner - at 18,30-34, of claim 1, located within the housing - see figure 1 of Winter et al., so that the high explosive is positioned between the liner and the housing - see figure 1 of Winter et al.

Referring to claims 23-27, Winter et al. as modified by Nielson et al. and Winter et al. as modified by Jacoby et al. further discloses one or more shaped charges of claims 1 and 21. Winter et al. does not specifically disclose a perforator gun, but Winter et al. does disclose using shaped charges in a well boring application as seen in column 1 lines 10-25 and in a well boring application the use of shaped charges in a perforating gun is inherent in such an application.

Referring to claim 30, Winter et al. as modified by Nielson et al. and Winter et al. as modified by Jacoby et al. further discloses one of the metals is iron, molybdenum, nickel or palladium – see column 3 lines 34-45 of Winter et al.

Claims 5-12 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Winter et al. as modified by Nielson et al. or Winter et al. as modified by Jacoby et al. as applied to claim 1 above, and further in view of U.S. Patent No. 6,371,219 to Collins et al.

Referring to claims 5 and 6, Winter et al. as modified by Nielson et al. and Winter et al. as modified by Jacoby et al. does not disclose a binder is added and/or coated on one of the metals to aid consolidation. Collins et al. does disclose a binder is added and/or coated on one of the metals to aid consolidation – see column 2 lines 50-67 and column 3 lines 1-15. Therefore it would have been obvious to one of ordinary skill in the art to take the device of Winter et al. as modified by Nielson et al. and Winter et al. as modified by Jacoby et al. and add the binder of Collins et al., so as to allow for the metal particles to be securely held together during use.

Referring to claims 7 and 45, Winter et al. as modified by Nielson et al. and Collins et al. and Winter et al. as modified by Jacoby et al. and Collins et al. further discloses the binder is a polymer - see column 2 lines 50-67 of Collins et al. Therefore it would have been obvious to one of ordinary skill in the art to take the device of Winter et al. as modified by Nielson et al. and Winter et al. as modified by Jacoby et al. and add the binder of Collins et al., so as to allow for the metal particles to be securely held together during use.

Referring to claim 8, Winter et al. as modified by Nielson et al. and Collins et al. and Winter et al. as modified by Jacoby et al. and Collins et al. does not specifically disclose the polymer is a stearate, wax or epoxy resin. However, it would have been obvious to one of ordinary skill in the art to take the device of Winter et al. as modified by Nielson et al. and Collins et al. and Winter et al. as modified by Jacoby et al. and Collins et al. and add the polymer binder being a stearate, wax or epoxy resin, so as to allow for the metal particles to be securely held together during use.

Referring to claim 9, Winter et al. as modified by Nielson et al. and Collins et al. and Winter et al. as modified by Jacoby et al. and Collins et al. further discloses the polymer is an

energetic polymer – see column 2 lines 50-67 and column 3 lines 1-15 of Collins et al. Therefore it would have been obvious to one of ordinary skill in the art to take the device of Winter et al. as modified by Nielson et al. and Winter et al. as modified by Jacoby et al. and add the binder of Collins et al., so as to allow for the metal particles to be securely held together during use.

Referring to claim 10, Winter et al. as modified by Nielson et al. and Collins et al. and Winter et al. as modified by Jacoby et al. and Collins et al. does not specifically disclose the energetic binder is selected from Polyglyn, GAP or Polynimmo. However, it would have been obvious to one of ordinary skill in the art to take the device of Winter et al. as modified by Nielson et al. and Collins et al. and Winter et al. as modified by Jacoby et al. and Collins et al. and add the energetic binder being Polyglyn, GAP or Polynimmo, so as to allow for the device to be more destructive during use.

Referring to claim 11, Winter et al. as modified by Nielson et al. and Collins et al. and Winter et al. as modified by Jacoby et al. and Collins et al. does not specifically disclose the binder is selected from lithium stearate or zinc stearate. However, it would have been obvious to one of ordinary skill in the art to take the device of Winter et al. as modified by Nielson et al. and Collins et al. and Winter et al. as modified by Nielson et al. and Collins et al. and add the binder being lithium stearate or zinc stearate, so as to allow for the metal particles to be securely held together during use.

Referring to claim 12, Winter et al. as modified by Nielson et al. and Collins et al. and Winter et al. as modified by Jacoby et al. and Collins et al. does not specifically disclose the binder is present in the range of 0.1 to 5% by mass. However, it would have been obvious to one of ordinary skill in the art to take the device of Winter et al. as modified by Nielson et al. and

Collins et al. and Winter et al. as modified by Jacoby et al. and Collins et al. and add the binder being 0.1 to 5% by mass, so as to ensure that there is sufficient binder to hold the metal particles in place during use.

Claims 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Winter et al. as modified by Nielson et al. and Winter et al. as modified by Jacoby et al. as applied to claim 13 above.

Referring to claims 14 and 15, Winter et al. as modified by Nielson et al. and Winter et al. as modified by Jacoby et al. does not specifically disclose the composition has particles being 1 micron or less in diameter or .1 microns or less in diameter. However, it would have been obvious to one of ordinary skill in the art to take the device of Winter et al. as modified by Nielson et al. and Winter et al. as modified by Jacoby et al. and add the particles being 1 or 0.1 microns or less, so as to allow for the particles to be easier to shape into the desired final product during manufacturing.

Referring to claims 16 and 17, Winter et al. as modified by Nielson et al. and Winter et al. as modified by Jacoby et al. does not specifically disclose the thickness of the liner is in the range of 1 to 10% or 1 to 5% the liner diameter. However, it would have been obvious to one of ordinary skill in the art to take the device of Winter et al. as modified by Nielson et al. and Winter et al. as modified by Jacoby et al. and add the thickness of the liner being in the range of 1 to 10% or 1 to 5% the liner diameter, so as to allow for the device to be of sufficient size to be destructive during use.

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Winter et al. as modified by Nielson et al. and Winter et al. as modified by Jacoby et al. as applied to claim 1 above, and further in view of U.S. Patent No. 3,235,005 to Delacour.

Referring to claim 18, Winter et al. as modified by Nielson et al. and Winter et al. as modified by Jacoby et al. does not disclose the thickness of the liner is non-uniform across the surface area of the liner. Delacour does disclose the thickness of the liner is non-uniform across the surface area of the liner - see at 7 or 13 in figures 4 and 6. Therefore it would have been obvious to one of ordinary skill in the art to take the device of Winter et al. as modified by Nielson et al. and Winter et al. as modified by Jacoby et al. and add the non-uniform thickness of the liner of Delacour, so as to allow for the device to be more destructive during use.

Response to Arguments

3. Regarding the prior art rejection of claim 1, the Winter et al. reference US 4766813 discloses a shaped charge liner comprising multiple metals - see columns 3-5 where the liner has two layers – at 30,32 with inner layer comprising a metal such as copper and the outer layer comprising a mixture of metals or metal alloys as seen in column 3 lines 20-45 and column 5 lines 10-25. Therefore the outer layer of Winter et al. discloses the two metals of a particulate composition and the inner layer or the third or more metals of the outer layer are the at least one further metal as claimed. Further, Winter et al. does not specifically disclose an exothermic reaction of the two metals upon activation of the shaped charge, but the claims do not positively recite these claim limitations. The claims disclose the two metals are “capable" of giving an

exothermic reaction upon activation and the combination of metals disclosed by Winter et al. are deemed as capable of performing the function of providing an exothermic reaction in that Winter et al. uses some of the same metals detailed by applicant in page 5 of applicant's specification. Further, the combination of the Winter et al. reference with Nielson et al. US 2004/0020397 or Jacoby et al. US 2002/0017214 is deemed proper in that each of the Nielson et al. and Jacoby et al. references disclose shaped charge liners made of a plurality of metals that are compacted as detailed above in paragraph 2 of this office action. Winter et al. also discloses the metals are particulate – see for example column 4 lines 50-66 and therefore given the similar structure and function of each of these references they are combinable as detailed above in paragraph 2 of this office action.

Regarding claim 46, neither Winter et al. or Jacoby et al. disclose using a fluoropolymer oxidizing agent and the Nielson et al. reference discloses using other types of oxidizing agents such as fluoroelastomers as seen in paragraph [0022].

Conclusion

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID J. PARSLEY whose telephone number is (571)272-6890. The examiner can normally be reached on Monday-Friday from 8am to 4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Poon can be reached on (571) 272-6891. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/David J Parsley/
Primary Examiner, Art Unit 3643